Tennessee Pollution Prevention Partnership Success Story

Saturn Corporation
P.O. Box 1500
100 Saturn Parkway
Spring Hill TN 37174
931-489-4839
www.saturn.com

Energetic Energy Busters Save 29 Million KWHs

The Member

Saturn Corporation, a General Motors subsidiary, established a highly integrated automotive manufacturing and assembly complex of over seven million square feet in Spring Hill, Tennessee. Approximately 7,000 Saturn team members are involved in producing spaceframe components and body panels, painting vehicles, manufacturing engines and transmissions, auto assembly, warehousing for retailer parts, and ancillary activities. The Saturn Spring Hill facility currently produces small S-Series Saturn sedans, coupes and compact SUVs sold through a network of approximately 440 dedicated retailers.

The Story

The Saturn plant has made a variety of process and environmental improvements since initial production in 1990. In a recent continual improvement initiative, Saturn focused on conserving energy across the site, especially targeting non-production periods. Several efforts were undertaken to identify and manage improvement ideas:

- Established a site-wide energy conservation task force, meeting weekly, identifying new opportunities for conservation
- Established a comprehensive Heating, Ventilation, and Air-conditioning (HVAC) weekend shutdown plan
- Established baseline energy usage based on previous summer and winter shutdowns
- Created an" Energy Report Card", distributed weekly, to identify daily energy usage by each metered utility (electricity, natural gas, compressed air, etc.), calculated energy savings for weekends based on production schedules, and detailed energy savings by each main production building
- Increased team member awareness by sharing energy conservation performance and improvement tips through site internal communications
- Interfaced with General Motors personnel for an energy audit
- Completed and evaluated an EPA Greenlights survey
- Completed a site-wide compressed air leak identification survey. Compressed air is considered the most inefficient energy source on-site because of the amount of energy (seven horsepower) it takes to generate one horsepower of compressed air
- Established temperature set points for the summer at 75°F for all buildings on site in Spring Hill. This represented an increase of 2°F over the past year's temperature set point

Each area also adopted improvements through simple observations and practical procedures:

- Reviewed equipment shutdown and start-up procedures
- Verified all unnecessary lighting is turned off
- Identified abandoned light fixtures that were still energized -- areas where production processes have been reworked and fixtures are still present
- Identified areas that are over-lighted for the activity being conducted
- Identified fixtures that are located directly over ductwork, metal work, offices, pipes, conveyors, etc. resulting in poor light distribution
- Checked exit lighting and emergency lights for burned out lamps (so you have adequate lighting to get out of the building)
- Verified task lighting is turned off in machine enclosures, ovens, catwalks, platforms, control cabinets, remote work areas, lunch areas, audit and inspection areas
- Verified lights are turned off in unoccupied areas such as outbuildings, storage areas, telephone closets, server closets, janitorial closets, mechanical rooms, pit areas, electrical substations, conference rooms, dining rooms, kitchens, and air supply houses
- Verified outdoor lighting is turned off during daylight hours, including: parking lot lights, building perimeter lighting, canopy lights, roof-mounted air supply house and substation lights, security lights at turnstiles or outside entry checkpoints, building signs and plant roadway lights.

The Success

From January 1, 2001, through October 15, 2001, Saturn realized the equivalent use avoidance of almost 29 million kilowatt hours of electricity, and 70,400 MCF of natural gas. Two challenges were met: maintaining required production while using less energy during run mode and during shutdown, and maintaining or improving lighting quality. "This is something that truly took a team effort," stated Bill Vessels, Body Systems Facilities Leader. These environmental savings also contributed significantly to cost reduction efforts at the facility, saving over a million dollars.

The Pollution Prevented

This project provides for significant environmental improvement by reducing the consumption of non-renewable resources at the power plant. It also reduces the quantity of airborne pollutants through a reduction in the use of electricity from fossil-fuel-fired power plants, which have been implicated as significant contributors to acid rain, ozone formation, and global warming. This initiative prevented emissions of 18,741 tons of CO_2, 160 tons of SOx, and 80 tons of NOx, based on Federal Energy Management Program-Building Life Cycle Cost data.